

Applicants : Petar R. Dvornic et al.
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In the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Canceled).
2. (Previously Presented) A compound of claim 19, wherein the alternating conjugated double and triple bonds are formed by intermolecular polymerization of diacetylene-functionalized dendritic polymers.
3. (Previously Presented) A compound of claim 2, wherein the dendritic polymer is a dendrimer.
4. (Previously Presented) A compound of claim 2, wherein the dendritic polymer is a hyperbranched polymer.
5. (Previously Presented) A compound of claim 2, wherein the dendritic polymer is a hyperbranched polymer having an average degree of branching from about 0.25 to about 0.45.
6. (Previously Presented) A compound of claim 2, wherein the dendritic polymer is a dendron.
7. (Previously Presented) A compound of claim 2, wherein the dendritic polymer is a dendrigraft.
8. (Previously Presented) A compound of claim 2, wherein the dendritic polymer is a dendronized linear polymer.

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9. (Previously Presented) A compound of claim 2, wherein the dendritic polymer is a tecto-dendrimer.

10. (Previously Presented) A compound of claim 19, wherein the sensory group is attached directly to a dendritic polymer block of the cross-linked material.

11. (Previously Presented) A compound of claim 19, wherein the sensory group is attached to a dendritic polymer block of the cross-linked material through a spacer.

12. (Previously Presented) A compound of claim 11 where the spacer through which the sensory group is attached to the dendritic segment comprises a diacetylene or polydiacetylene moiety.

13. (Previously Presented) A diacetylene functionalized dendritic compound obtained by reaction of a dendritic polymer having at least two different types of reactive end-groups with a diacetylene reagent having the following general formula:

$$X - \left(\text{CH}_2 \right)_n \text{C} \equiv \text{C} - \text{C} \equiv \text{C} - \left(\text{CH}_2 \right)_m \text{R}$$

wherein X is a group that reacts with one or more end groups of the dendritic polymer; R is a sensory group; and n and m are integers.

14. (Previously Presented) A compound of claim 13 in which X is Cl-, Br-, I-, p-tosyl, mesyl, acryloxy, isocyanato, epoxy, CH₃OC(O)-, ClC(O)-, N-hydroxysuccinimidyl-C(O)-, pentafluorophenoxy-C(O)- or p-nitrophenoxy-C(O)-.

15. (Previously Presented) A compound of claim 13 in which n is 0 to 25.

16. (Previously Presented) A compound of claim 13 in which m is 0 to 25.

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17. (Canceled).

18. (Previously Presented) A compound of claim 13 in which the dendritic polymer has -NH₂ end-groups.

19. (Previously Presented) A compound comprising dendritic polymer moieties intermolecularly linked by a moiety having alternating conjugated double and triple bonds, and at least one sensory group covalently bonded to the dendritic polymer moieties, the dendrimer polymer moieties having at least two different types of reactive end-groups.

20. (Previously Presented) A compound of claim 19 in which the dendritic polymer moieties have -NH₂ and -OH end-groups.

21. (Previously Presented) A compound of claim 20 in which the dendritic polymer moieties are polyamidoamine (PAMAM) dendrimer moieties.

22. (Previously Presented) A compound of claim 20 in which the PAMAM dendrimer moieties have 25% -NH₂ end-groups and 75% -OH end-groups.

23. (Canceled).

24. (Previously Presented) A compound of claim 19, wherein the sensory group is selected from the group consisting of peptides, carbohydrates, nucleic acids, biotin, avidin, histamine, chromophores, antigens, antibodies, enzymes, chelating compounds, molecular recognition complexes, ionic groups, polymerizable groups, linker groups, electron donors, electron acceptors, hydrophobic groups, hydrophilic groups, receptor binding groups, antibodies, and combinations thereof.

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25. (Previously Presented) A method of detecting and/or quantifying the amount of an analyte in a sample, comprising:

contacting a sample that is to be analyzed for a particular analyte with a cross-linked dendritic material of claim 1;

allowing specific binding between the analyte and the sensory group;

monitoring a detectable change caused by specific binding between the analyte and the sensory group; and

correlating the detectable change with the presence of an analyte in the sample, and optionally correlating the detectable change with an amount of analyte present in the sample.

26. (Original) The method of claim 25 where the sensing material is imbedded in or deposited on a solid substrate.

27. (Original) The method of claim 26 where the substrate is glass, quartz, silicon, other metals, wood, plastic, paper, cellulose or nitrocellulose.

28. (Original) The method of claim 25 in which detection is achieved by means of a visible color change.

29. (Original) The method of claim 25 in which quantitative detection is achieved by means of a color change measured with an ultraviolet/visible spectrometer.

30. (Original) The method of claim 25 in which detection is achieved by means of a change in fluorescent properties.